

COST Action IC1201

2012 | 2016

BETTY

Behavioural Types for Reliable Large-Scale Software Systems

In the past, computing consisted of isolated computers processing data. Programming languages quickly adopted data types in order to codify the structure of data and support the development of reliable data-processing software. Today, computing depends on communication between co-operating components. Behavioural types codify the structure of communication and have the potential to support the development of reliable communication-oriented software, but have not yet been systematically put into practice.

Objectives

- To develop the domain of certified software for global services, by incorporating behavioural types into programming languages and software engineering tools for automatically checking behavioural properties of communicating software systems.
- To co-ordinate European research activity on the theory and application of behavioural types, and the deployment of programming languages and tools based on them.
- To build an effective working community of European researchers in this area.
- To encourage the industrial adoption of advanced programming languages and tools.

Working Groups

- WG 1: Foundations
developing the theory of behavioural types in order to support their applications
- WG 2: Security
integrating behavioural types with techniques for security analysis
- WG 3: Languages
implementing behavioural types in practical programming languages
- WG 4: Tools and Applications
developing software engineering tools and applying them to realistic case studies

Main Achievements

- Participation has increased from 12 countries involved in the proposal, to 22 countries involved now – a significant expansion of the community, bringing new expertise, new research questions, and new application areas.
- Within and between Working Groups, we are developing a clear picture of the current state of the art and the most productive directions for further research.
- Industrial contacts are being brought into contact with a wider range of researchers, for mutual benefit.
- We organised a successful open workshop, BEAT (Behavioural Types), at a leading international conference, Principles of Programming Languages (POPL), in January.
- STSMs are supporting the continuation of existing collaborations and the formation of new collaborations.

Gender Balance and Early Stage Researchers

- Objectives: (1) to maintain a good gender balance in all activities; (2) to involve early stage researchers in the organisation and scientific work of the Action.
- Status: membership is approximately 21% female and 24% early stage researchers. The MC is 23% female. The vice-chair of each WG is an early stage researcher, and other early stage researchers were actively involved in the first WG meetings. Of the four STSMs approved so far, three are by early stage researchers.
- Foreseen Support Measures: we will maintain or improve the current statistics, and especially encourage early stage researchers to propose STSMs.

Dissemination

- The Action will be presented at the Research Project Symposium of the European Conference on Object-Oriented Programming (ECOOP), in July.

www.cost.eu/ict

Information and
Communication
Technologies
(ICT)



Participating countries: 22

BA, CY, DE, DK, EE, ES, FR, GR, HR, IE, IT, LT, MK, MT, NL, NO, PL, PT, RO, RS, SE, UK

Contact details

Chair of the Action

Simon Gay
Simon.Gay@glasgow.ac.uk

Domain Committee Rapporteur

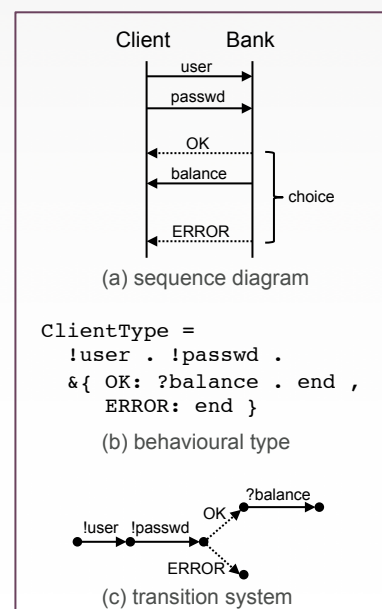
Jan Mikkelsen
jhm@es.aau.dk

Science Officer (COST Office)

Ralph Stübner
Ralph.Stuebner@cost.eu

Website

www.behavioural-types.eu



Describing structured communication.



COST is supported
by the EU RTD
Framework Programme



ESF provides the COST
Office through a European
Commission contract